REMARKS

In the first Office Action mailed May 18, 2004, acknowledge of the priority claim was made and the outstanding requirement for certified copies of the priority applications was noted. The certified copies are in the process of being obtained and will be filed with the U.S. Patent & Trademark Office as soon as received.

Claims 1-22 were examined, it being noted however that claim 22 was skipped and the 22nd claim numbered claim 23. The Examiner has renumbered claim 23 to claim 22, and with claims 23-30 newly added above, claims 1-30 are pending in the present case.

The following claim objections were made and have been addressed by amendment above:

- Claim 4—"one" was missing after "at least". The phrase has been deleted.
- Claim 9—"the keel" lacked antecedent basis. The term has been deleted.
- Claim 14—"the main hull" lacked antecedent basis. The phrase has been deleted.
- Claim 18—"the aft end" lacked antecedent basis and "member" was omitted. Amendments have been made.
- Claim 19—"the hull" lacked antecedent basis. Claim 1 has been amended to provided antecedent basis.
- Claim 21—"the or" phrase was found problematic and "the propeller" lacked antecedent basis. Both phrases have been corrected.
- Claim 22—has been corrected to depend from claim 20.

A. Summary of the Present Invention.

As amended, independent Claim 1 now clearly recites the features of the present invention that provide for an amphibious vehicle capable of travel on land and in water in a highly efficient and stable manner:

(i) a main hull for providing the primary buoyancy of the vehicle;

(ii) a sponson positioned on and mounted to each side of the main hull; and

(iii) fore and aft road wheels,

the sponsons being movable relative to the main hull and relative to said fore and aft wheels between (a) a stowed position where each sponson is adjacent to and located to one side of said main hull, and (b) a deployed position wherein each sponson is spaced from respective sides of said main hull and additional buoyancy providable by said sponsons provides additional stability to the main hull.

Referring now to the dashed outline of FIG. 3 and also as shown in FIG. 4, in the stowed position the sponsons of amended Claim 1 are positioned between the fore (front) and aft (back) wheels and also adjacent the sides of the vehicle hull. The sponsons can be moved into the deployed position shown in FIGS. 3 and 4. It is most important to note that a low center of gravity is retained in all three phases of the vehicle – the land configuration, the water borne configuration and the transition between the two. The upper part of the vehicle can thus be used for passenger accommodation while the stability of the vehicle is not compromised by passenger loading, as the low center of gravity is maintained.

Furthermore, the transitional intermediate phase of moving between land and water is easily achieved by the present invention as set forth in the amended claims because the main vehicle body forms a hull which allows the vehicle to become water borne while the wheels are being stowed and the sponsons deployed. The narrow hull forms part of the vehicle width while the sponsons make up the remaining width of the vehicle, with the main hull providing the main buoyancy of the vehicle in the water and the sponsons providing additional stability to the hull.

In such an arrangement, the deck/passenger area can thus extend to the combined width of the hull and the sponsons and notwithstanding this fact the vehicle is very stable on water. Furthermore a compact and efficient design is achieved while a greater load or increased passenger numbers can be accommodated.

B. Amended Claims 1-3, 5-7, 11, 12, 15 and 19-21 are Patentably Distinguishable over U.S. Patent No. 5,315,950 to *Abel*.

Abel discloses a motor home type arrangement wherein two buoyancy tanks are mounted in the stowed position on the roof of the vehicle. FIGS. 2, 3 and 8 of *Abel* clearly disclose a motorized vehicle body which is lifted clear of the water when the tanks are lowered into the water. The primary buoyancy for the *Abel* vehicle does not appear to come from "a hull" of the vehicle but rather from the buoyancy tanks.

Abel fails to each or suggest the sponsons of amended Claim 1 which are "positioned to and mounted to each side of the main hull" in a "stowed position . . . adjacent to and located to one side of the main hull." *Abel* also fails to teach and suggests the hull of amended Claim 1 in which the hull provides the primary buoyancy of the vehicle and is stabilized by sponsons.

It is believed that the structure of the *Abel* vehicle will make it unstable when traveling on water due to its relatively high center of gravity. Thus, a major problem of vehicle stability when traveling over water with *Abel* is overcome with the present invention. Furthermore the vehicle appears difficult for the driver to transform the vehicle from its land (wheel supported) configuration to its water borne configuration, since the vehicle is not driven straight into water as can be achieved with a vehicle of the present invention.

At col. 3, lines 4-45, *Abel* refers to deploying buoyancy tanks prior to water entry in which case it is impossible to see how the vehicle can be moved, on the assumption that the deployment of the tanks will lift the vehicle wheels off the ground. It seems the only workable proposition is that the operator of the vehicle first lowers the propulsion unit 46 with ground engaging wheels 50 (see col. 3 lines 36-45) so that the entire land vehicle chassis and wheels 15 are lifted clear of the ground (see FIGS. 2-3). It will be appreciated therefore that *Abel* in fact raises substantially the center of gravity of the vehicle both on land and on water. Thus the unit 46 and the wheels 50 being lowered during entry make the vehicle unstable at a critical phase.

In contrast, the amphibious vehicle of amended Claim 1 is capable of moving on land even if the sponsons are deployed and is capable of moving

on water even if the wheels are not retracted. This means that the vehicle can enter and exit water from and to adjoining land with maximum stability, particularly at the critical transition point where the vehicle is partially being supported by the wheels and partially by the hull stabilized by the sponsons.

Thus, as amended, Claim 1 is patentably distinguishable over *Abel.* Claims 2, 3, 5-7, 11, 12, 15 and 19-21 contain the elements distinguishing Claim 1 over *Abel* through dependency and thus are also are patentably distinguishable over *Abel* for the reasons given above with respect to Claim 1.

C. Amended Claims 1 and 16-18 are Patentably Distinguishable Over U.S. Patent No. 4,048,685 to *Gail.*

As amended, Claim 1 is now patentably distinguishable over *Gail. Gail* relates to a towed houseboat. The houseboat, which is not independently powered on land, is towed by a car in land use. The car is not provided with water propulsion means. *Gail* does not teach or suggest a hull within the meaning of the present invention and thus does not provide an amphibious vehicle pertinent to the present invention. To transform the *Gail* houseboat from its towed configuration on land to its floating configuration on water, the vehicles must be stopped, with entry into water by way of continuous movement neither taught nor suggested.

Gail discloses two "pontoons" which are stowed on the roof above the main body of the vehicle, and deployed for use (see FIGS. 2 and 3) to raise the main body of the houseboat out of the water. For this reason alone, Claim 1 and dependent Claims 16-18 are patentably distinguishable over *Gail*, as reciting sponsons "positioned to and mounted to each side of the main hull" in a "stowed position . . . adjacent to and located to one side of the main hull."

D. Amended Claims 1-3, 7 and 9 are Patentably Distinguishable Over U.S. Patent No. 5,687,669 to *Engler.*

Engler teaches a vehicle which could have substantial difficulty transitioning between land and water, not least because the wheels are attached to the pontoons. Moreover, because the wheels are affixed to the pontoons, road surface vibrations during land travel and are transmitted

directly to the pontoons in a position where the pontoons are particularly vulnerable to damage if the vehicle catches the ground. This is particularly undesirable.

In any case, *Engler* neither teaches nor suggests "a main hull for providing the primary buoyancy of the vehicle" as recited in Claim 1 because the *Engler* pontoons are believed to constitute its primary source of buoyancy. *See,* FIGS. 2 and 4 of *Engler,* where it is shown that the entire buoyancy for the vehicle is provided by the pontoons. Neither does *Engler* teach or suggest a main hull "stabilized by sponsons", as in amended Claim 1.

Furthermore, the *Engler* sponsons are not movable with respect to the wheels of the vehicle as set out in the present Claim 1. This again has the disadvantage (in common with *Gail* and *Abel*) that the vehicle cannot move on land when in its water borne configuration (*see* FIGS. 2 and 4 where the wheels are moved out of their ground engaging position.) *Engler* also fails to teach or suggest "fore and aft wheels are on the hull" as recited in amended Claim 3.

Thus, as amended, Claim 1 is patentably distinguishable over *Engler.* Claims 2-3, 7 and 9, which contain the elements distinguishing Claim 1 over *Engler* through dependency and thus are also are patentably distinguishable over *Engler* for the reasons given above with respect to Claim 1.

E Amended Claims 1-4 are Patentably Distinguishable Over U.S. Patent No. 3,661,114 to *Wagner.*

Wagner provides a structure which is essentially an amphibious bridge. The position and extent of the "auxiliary floating bodies" (i.e., the floats or pontoons) prevents the use of the *Wagner* vehicle for carrying passengers or cargo, since the floats take up the entire region above the hull when in the stowed position (*See* FIGS. 3, 4 and 8 and col 3. lines 64-71 where it is indicated that the floats each extend over half the width of the vehicle). In this respect it represents an inefficient design at least in so far as carrying capacity is concerned.

Wagner's "auxiliary floating bodies" are mounted over the *Wagner* hull, so that like *Able* and *Gail, Wager also* fails to each or suggest the sponsons

of amended Claim 1 which are "positioned to and mounted to each side of the main hull" in a "stowed position . . . adjacent to and located to one side of the main hull."

Furthermore the positioning of the "auxiliary floating bodies" is such as to substantially raise the center of gravity of the vehicle (in either the land or water configurations) and thus substantially reduce the stability of the vehicle. Furthermore it appears that any substantial load on the vehicle platform (*see* Reference No. 10 of FIG. 1) could only be placed there after the vehicle is in its water borne configuration and would also have to be removed before the vehicle re-emerged from the water (as the floats could not be fully stowed if obstructed by the load carried). The size of the floats which fold out in various portions (*see* the sequence of FIGS. 4 to 7) is to allow the vehicle to act as an amphibious bridge as intended.

The *Wagner* vehicle is large and cumbersome both on the road and the water and is intended for a purpose where in water manoeuvrability is not a major factor (in that it will sit in place forming the desired bridge an will generally not be used for transport on road). In contrast the present invention provides an amphibious vehicle which can carry a load such as a passenger load, into and out of water which still retaining the capacity to be in the water borne configuration when on land while allowing the sponsons of the vehicle to be stowed for land travel without interfering with its load.

Thus, as amended, Claim 1 is patentably distinguishable over *Wagner*. Claims 2-4, which depend from amended Claim 1, are thus also are patentably distinguishable over *Wagner* for the reasons given above with respect to Claim 1.

F. Amended Claims 1, 13 and 14 are Patentably Distinguishable Over U.S. Patent No. 1,490,964 to *Cook, et al.*

Cook describes a vehicle with a hull body to which are permanently affixed pontoons which cannot be moved between stowed and deployed positions. The pontoons of *Cook* have wheels, one set of which is provided on the pontoons (*see* FIG. 4). The pontoons of *Cook* are not moveable to a deployed position with respect to either the hull or the wheels.

Thus, amended Claim 1, which recites "sponsons being movable relative to the main hull and relative to said fore and aft wheels between (a) a stowed position where each sponson is adjacent to and located to one side of said main hull, and (b) a deployed position wherein each sponson is spaced from respective sides of said main hull and additional buoyancy providable by said sponsons provides additional stability to the main hull", is patentably distinguishable over *Cook*. Claims 13 and 14 which depend from amended Claim 1, are patentably distinguish over *Cook* as incorporating the distinguishing features of amended Claim 1 through dependency.

G. Amended Claims 1-3, 7, 9 and 10 are Patentably Distinguishable Over U.S. Patent No. 3,027,862 to *Votre*.

Votre teaches a vehicle primarily intended for achieving speed over water which is achieved with a vehicle which converts from a land vehicle into a hydrofoil arrangement. In this arrangement provides, the main vehicle body is lifted clear of the water (*see* FIG. 1) with 4 hydrofoils on struts which can be moved beneath the vehicle. The hydrofoils are rotated into a stowed position as shown in FIG. 1 (by the part-circle shown) from the positions shown as 18 to the position shown as 18a and also the position shown at 20 to the position shown at 20a. The dynamic stability of *Votre* when the vehicle is speeding is created by the motion of the hydrofoils through the water. This contrasts to amended Claim 1 of the present invention where additional stability is provided to the hull by the sponsons, when the sponsons are deployed.

Furthermore, in its stowed position, the *Votre* hydrofoils are not alongside the hull, as recited in amended Claim 1. Thus, as amended, Claim 1 is patentably distinguishable over *Votre*. Claims 2, 3, 7, 9 and 10, which depend from amended Claim 1, are also are patentably distinguishable over *Votre* for the reasons given above with respect to Claim 1

H. Newly Presented Claims 23-30 are Patentably Distinguishable over the References of Record.

In view of these distinctions and furthermore in view of the clear advantages achieved by the present invention it is submitted that the present invention is patentably distinguishable over the references of record.